REMARKS

Reconsideration and allowance of this application are respectfully requested. Claims 18 and 19 have been amended. Claims 1-19 are pending in the application. The rejections are respectfully submitted to be obviated in view of the amendments and remarks presented herein.

As a preliminary matter, the Examiner has not indicted on the Office Action Summary PTOL-326 that all certified copies of the priority documents have been received. In particular, box 1 under the **Priority under 35 U.S.C. § 119** section has not been checked. Applicants respectfully request the Examiner to acknowledge receipt of all the certified copies of the priority documents in the next Office communication.

Furthermore, although the Examiner has indicated on the Office Action Summary PTOL-326 that Information Disclosure Statement (PTO/SB/08) papers have been attached, the IDS filed on February 6, 2004 has not been considered, initialed, and attached to the Office communication dated March 24, 2008. Applicants respectfully request the Examiner to attach an initialed copy of the Information Disclosure Statement filed on February 6, 2004 to the next Office communication.

Rejection Under 35 U.S.C. § 101

Claims 18 and 19 have been rejected under 35 U.S.C. § 101 as allegedly being directed to non-statutory subject matter. Claims 18 and 19 have been amended, and the reference to "carrier waves" has been deleted from the specification. Accordingly, reconsideration and withdrawal of the rejection under 35 U.S.C. § 101 are respectfully requested.

Rejection Under 35 U.S.C. §102(e)

Claims 1, 5, 6, 8, 12 and 18 have been rejected under 35 U.S.C. § 102(e) as allegedly being anticipated by Osafune et al. (U.S. Patent Publication No. US 2002/0023150 A1; hereinafter "Osafune"). The rejection is respectfully traversed.

Osafune discloses a network system of redundant components, in which communication paths and network interfaces (NIFs) are duplicated such that when one server computer detects a fault occurring in the path between its active NIF and the router, the server computer changes the IP address assignment from its active NIF to its standby NIF (see Abstract). As shown in FIG. 2, a client computer (160) retains both a default gateway table (201) and an ARP cache (202) which retains MAC addresses mapped to IP addresses. Both the default gateway table and the ARP cache reside in the memory of the client computer (paragraph [0049]). Packet routing to a destination IP address is accomplished by referring to the default gateway table (201), within which the client computer (160) finds the default gateway address. Then, the client computer (160) searches the ARP cache (202) to find the MAC address mapped to the default gateway address and also finds the output port (paragraph [0050]).

As such, Osafune's method of switching between redundant network interfaces is very different than the claimed invention. Regarding claim 1, a method of determining a next hop address using a unified cache comprises:

(a) determining whether a destination node is onlink or offlink based on a unified cache storing information regarding a plurality of nodes linked to a predetermined network;

(b) detecting from the unified cache an entry storing a network layer address that matches a network layer address of the destination node if the destination node is determined as onlink in step (a); and

(c) determining a link layer address stored in the entry detected in step (b) as a link layer address of a next hop node.

First, Osafune fails to teach or suggest, *inter alia*, "determining whether a destination node is onlink or offlink based on a unified cache storing information regarding a plurality of nodes linked to a predetermined network," as recited by claim 1. Osafune only discloses that a client computer (160) finds a default gateway address stored in a default gateway table (201), and uses the found default gateway address to find a MAC address mapped to the default gateway address by searching an ARP cache (202) (paragraph [0050]). Likewise, when transferring a packet to an IP address assigned to the client computer (160), a server computer (101) searches a routing table (401) to find a next hop IP address mapped to a network address corresponding to the IP address of the client computer (160). The server computer (101) then searches an ARP cache (402) to find a MAC address mapped to the IP address of the client computer (160). The server computer (101) then sets the MAC address as the destination MAC address of the packet and transmits the packet from its NIF (102) (paragraph [0055]).

As such, Osafune does not teach or suggest any determination of whether a destination node is onlink or offlink, nor is any such determination made based on a unified cache storing information regarding a plurality of nodes linked to a predetermined network, as claimed. Although Osafune finds a next hop IP address and a destination MAC address for a packet,

Osafune is silent on making any particular determinations as to whether the destination of a packet is an onlink node or an offlink node. Osafune only determines a destination MAC address for transferring a packet, and it appears that all of the destination MAC address for packet transmission are offlink in Osafune, and thus no determination of whether a destination node is onlink or offlink is suggested or even needed to be made in Osafune.

Osafune further does not teach or suggest "a unified cache storing information regarding a plurality of nodes linked to a predetermined network," as claimed. Although the Examiner has referred to pages 2-4 of the Office Action to Osafune's routing table (401) as well as Osafune's ARP cache (402) for allegedly teaching a unified cache, these components are clearly disclosed by Osafune to be ***separate*** components, which separately reside in memory of the server computer (101) and are separately searched by the server computer (101). As such, Osafune does not teach or suggest "a unified cache storing information regarding a plurality of nodes linked to a predetermined network," as recited by claim 1.

Second, Osafune also fails to teach or suggest "detecting from the unified cache an entry storing a network layer address that matches a network layer address of the destination node if the destination node is determined as onlink in step (a)," as recited by claim 1. As discussed above, Osafune does not teach or suggest a unified cache, nor does Osafune teach or suggest a determination of a destination node being onlink.

Osafune searches both a routing table (401) of a server computer (101) to find a next hop IP address, as well as thereinafter searching an ARP cache for a MAC address mapped to the found IP address (paragraph [0055]). As shown in FIG. 2 of Osafune, the client computer (160)

also retains a separate default gateway table (201) as well as an ARP cache (202). Therefore, Osafune does not teach or suggest either a unified cache or a determination of a destination node as onlink.

Furthermore, Osafune is related to "IPv4 network system enabling automatic communication restoration by the switchover between the paths and the NIFs, when equipment and a line in the network are placed in a fault state." (paragraph [0016]). As such, Osafune is not related to an IPv6 network system determining a next hop address using a unified cache. In other words, Osafune discloses only a typical method determining a MAC address according to ARP (Address Resolution Protocol) in IPv4 environment (refer to, for example, http://searchcio-midmarket.techtarget.com/sDefinition/0,,sid183_gci213780,00.html). Therefore, Osafune cannot disclose or suggest any method of determining a next hop address using a unified cache in an IPv6 environment. <u>Above all, any determination of whether a destination node is onlink or offlink cannot be disclosed in Osafune because such relates specifically to only IPv6 environments.</u>

Accordingly, Osafune does not teach or suggest every element as recited by claim 1. Claims 8 and 18 are related independent claims, and are also distinguished over Osafune for analogous reasons. Claims 5, 6 and 12 are dependent claims which are also distinguished over Osafune at least in view of their dependencies as well as for their additionally recited elements.

With further regards to claim 5, is appears that the Examiner's rejection to claim 5 is improper. Claim 4 has been indicated in paragraph 13 of page 12 of the Office Action, as well as on the Office Action Summary PTOL-326 form, to be only be objected to as being dependent

upon a rejected base claim, but otherwise allowable. Therefore, claim 5 should also be allowable over the cited references at least in view of its dependency upon claim 4.

Reconsideration and withdrawal of the rejection under 35 U.S.C. § 102(e) are respectfully requested.

Rejections Under 35 U.S.C. §103(a)

Claims 2 and 9 have been rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Osafune in view of Sharma (U.S. Patent Publication No. US 2004/0001497 A1) further in view of Matsumoto (JP 2001-119399). The rejection is respectfully traversed.

As discussed above, Osafune fails to teach or suggest every element of the claimed invention as recited by each of claims 1 and 8. Sharma and Matsumoto do not remedy the deficiencies of Osafune, either alone or in combination.

The Examiner has relied upon Sharma solely for the alleged teaching of a prefix tree where the next hop, local interface, next hop link and next routes are respectively identified by indexing a single table. However, Sharma also fails to teach or suggest, *inter alia*, "(a) determining whether a destination node is onlink or offlink based on a unified cache storing information regarding a plurality of nodes linked to a predetermined network; [and] (b) detecting from the unified cache an entry storing a network layer address that matches a network layer address of the destination node if the destination node is determined as onlink in step (a)," as recited by exemplary claim 1.

The Examiner has relied upon Matsumoto for the alleged teaching of using a unified cache in an IPv6 environment. However, Matsumoto also fails to teach or suggest, *inter alia*, "(a) determining whether a destination node is onlink or offlink based on a unified cache storing information regarding a plurality of nodes linked to a predetermined network; [and] (b) detecting from the unified cache an entry storing a network layer address that matches a network layer address of the destination node if the destination node is determined as onlink in step (a)," as recited by exemplary claim 1.

Therefore, claim 1 is distinguished over Osafune in view of Sharma further in view of Matsumoto. Claim 8 is a related independent claim, and is also distinguished over Osafune in view of Sharma further in view of Matsumoto for analogous reasons. Claims 2 and 9 are dependent claims which are also distinguished over Osafune in view of Sharma further in view of Matsumoto at least in view of their dependencies as well as for their additionally recited elements.

With further regards to claim 2 and 9, Sharma also does not teach or suggest a "unified cache compris[ing] an IPv6 destination cache, an IPv6 neighbor cache, an IPv6 basic router list, and an IPv6 prefix list which are unified," as recited by exemplary claim 2. In fact, Sharma discloses in paragraph [0032] that a gateway C either creates an interface table (54) for gateway A and stores it in memory (104), or updates an existing interface table (54) in memory (104), according to instructions stored in memory (104). Sharma's interface table (54) includes interface list (46) from interface message (44). Further, entries (35) of a global routing table are also updated to include a nexthop_link indicator (42) for each associated route that includes

gateway A as the nexthop in the route. A pointer (56) points to an entry in interface table (54) corresponding to the interface_id for the next hop. Therefore, Sharma clearly does not teach or suggest a unified cache as recited by exemplary claim 2. Claim 9 is further distinguished over Osafune in view of Sharma further in view of Matsumoto for analogous reasons.

Reconsideration and withdrawal of the rejection under 35 U.S.C. § 103(a) are respectfully requested.

Rejections Under 35 U.S.C. §103(a)

Claims 3 and 10 have been rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Osafune in view of Sharma. The rejection is respectfully traversed.

As discussed above, Osafune and Sharma, either alone or in combination, fail to teach or suggest every element of the claimed invention as recited by each of claims 1 and 8. Claims 3 and 10 are dependent claims which are also distinguished over Osafune in view of Sharma at least in view of their dependencies as well as for their additionally recited elements.

Reconsideration and withdrawal of the rejection under 35 U.S.C. § 103(a) are respectfully requested.

Rejections Under 35 U.S.C. §103(a)

Claims 14 and 19 have been rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Sharma in view of Frick et al. (U.S. Patent Publication No. US 2004/0001485 A1) further in view of Matsumoto. The rejection is respectfully traversed.

Regarding claim 14, a method of constructing and utilizing a unified cache comprises:

(a) receiving information regarding a plurality of nodes connected to an Internet Protocol version 6 (IPv6) link local network and unifying an IPv6 destination cache, an IPv6 neighbor cache, an IPv6 default router cache, an IPv6 prefix cache based on the information received from the nodes to construct the unified cache; and

(b) determining a link layer address of a next hop node based on the unified cache.

Sharma fails to teach or suggest, *inter alia*, "receiving information regarding a plurality of nodes connected to an Internet Protocol version 6 (IPv6) link local network and unifying an IPv6 destination cache, an IPv6 neighbor cache, an IPv6 default router cache, an IPv6 prefix cache based on the information received from the nodes to construct the unified cache," as recited by exemplary claim 14. As discussed above, Sharma does not construct or even use a unified cache. Although a Radix Prefix Tree is used which is based on a global routing table as shown in FIGS. 6, 8 and 9, as discussed above, the global routing table is used, in addition to an interface table (54), by including a nexthop_link indicator (42) which includes a pointer (56) pointing to an entry in the interface table (54) corresponding to the interface_id for the next hop (paragraph [0032]). Therefore, Sharma does not teach or suggest ***a unified cache*** constructed by unifying an IPv6 destination cache, an IPv6 neighbor cache, an IPv6 default router cache, an IPv6 prefix cache based on the information received from the plurality of nodes connected to the IPv6 link local network, as claimed.

The Examiner has relied upon Frick solely for the alleged teaching of a routing table having IP address and MAC address for destinations where each entry may include an address prefix. However, Frick also fails to teach or suggest, *inter alia*, constructing a unified cache, and particularly "receiving information regarding a plurality of nodes connected to an Internet Protocol version 6 (IPv6) link local network and unifying an IPv6 destination cache, an IPv6 neighbor cache, an IPv6 default router cache, an IPv6 prefix cache based on the information received from the nodes to construct the unified cache," as recited by exemplary claim 14.

Frick discloses using master and slave management service modules, which use a hardware forwarding table which is stored on both the master and slave management service modules, and a routing table (115) which is included on only the master management service module (108). The routing table (115) includes a destination IP address/subnet mask, and MAC address forwarding information, as shown in table 2 and paragraph [0033]) of Frick. Therefore, the routing table (115) only stores a portion of the information that a prior art neighbor cache would have stored, and as such, could not teach or suggest a unified cache as claimed, even if Frick is taken in view of Sharma's separate global routing table and interface table (54), wherein entries of the interface table (54) are pointed to by the pointer (56) of a nexthop_link indicator (42).

The Examiner has relied upon Matsumoto for the alleged teaching of using a unified cache in an IPv6 environment. However, Matsumoto also fails to teach or suggest, *inter alia*, "receiving information regarding a plurality of nodes connected to an Internet Protocol version 6 (IPv6) link local network and unifying an IPv6 destination cache, an IPv6 neighbor cache, an

IPv6 default router cache, an IPv6 prefix cache based on the information received from the nodes to construct the unified cache," as recited by exemplary claim 14.

Therefore, claim 14 is distinguished over Sharma in view of Frick further in view of Matsumoto. Claim 19 is a related independent claim, and is also distinguished over Sharma in view of Frick further in view of Matsumoto for analogous reasons.

Reconsideration and withdrawal of the rejection under 35 U.S.C. § 103(a) are respectfully requested.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

Lenny R. Jiang
Registration No. 52,432

SUGHRUE MION, PLLC
Telephone: (202) 293-7060
Facsimile: (202) 293-7860

WASHINGTON OFFICE
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CUSTOMER NUMBER

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